

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-9 are pending in the present application. No claims are added, amended, or canceled by the present response.

In the outstanding Office Action, Claims 1-3 and 5-9 were rejected under 35 U.S.C. §102(b) as anticipated by Itsumi et al. (U.S. Patent No. 5,887,140, herein “Itsumi”)<sup>1</sup>, and Claim 4 was rejected under 35 U.S.C. §103(a) as unpatentable over Itsumi, both of which are respectfully traversed for the following reasons.

Briefly recapitulating, independent Claim 1 is directed to a personal identification system that includes, *inter alia*, a first electrode disposed in a first skin area of a person and a second electrode that is disposed in a second skin area apart from the first skin area. A contact surface between the second electrode and the second skin area has a predetermined area such that a resistance of the epidermis in the second skin area becomes substantially zero when an electric potential is generated between the first electrode and the second electrode. Independent Claim 7 recites similar features as Claim 1.

In a non-limiting example, Figure 2 shows the first electrode 4 and the second electrode 3, which has a predetermined area such that the resistance of the epidermis 1 becomes substantially zero when an electrical potential is applied by a power supply as shown in Figure 2.

Turning to the applied art, Itsumi discloses a computer network system and personal identification system that uses plural electrodes 144-i that form a linear electrode array 142 in order to detect a resistance between two electrodes, which might be typical for a fingerprint. The electrodes 144-i are shown in Figure 3. Itsumi discloses at column 6, lines 35-49, that

<sup>1</sup> It is noted that the outstanding Office Action cited two Itsumi references but did not identify which one is used to reject the claims. However, Applicant believes that Itsumi ‘140 has been used by the outstanding Office Action and this reference is discussed in this Response.

when a finger is pressed on the linear electrode array 142, water escapes from the sweat pores of the finger and reaches the linear electrodes lying directly below the finger. Further, Itsumi discloses in the same paragraph that “[a]t this time, the electric resistance between the electrodes where moisture has reached decreases due to ions that depend on moisture.”

Itsumi shows in Figure 4 that a voltage applied between electrode has a variable value depending on the position of the electrodes relative to each other, i.e., which of two electrodes 142-i and 142-j of the plurality of electrodes 142-n are involved in the measurement.

However, Itsumi does not teach or suggest that the resistance of the epidermis in a second skin area becomes substantially zero when an electric potential is generated between the first and second electrodes. It is noted that Itsumi stated only that a resistance between electrodes decreases but not that the resistance is substantially zero. Also, it is noted that the reduction in the resistance in Itsumi is determined by pressing the finger to produce more sweat while Claims 1 and 7 recite that a surface area of the second electrode is such selected that the resistance is substantially zero. Thus, Itsumi is not concerned with the area of the electrode.

The outstanding Office Action takes the position, in the paragraph bridging pages 2 and 3, that in Itsumi, the resistance of the epidermis becomes substantially zero because Figure 4 shows that the voltage is proportional to the resistance (because the current is constant). However, this assertion has no basis because Figure 4 shows that the voltage V is not zero except for one point and thus, if the voltage is different from zero, by dividing the voltage with a constant value (current) to obtain the resistance, would not result in the resistance being zero.

The only point shown in Figure 4 as having a zero value corresponds to a zero resistance, zero voltage, based on the assertion of the outstanding Office Action that the

voltage is proportional with the resistance. Thus, for that point, the resistance is zero and the voltage is also zero, which is different from a resistance being zero and the voltage not being zero as recited by independent Claims 1 and 7.

Accordingly, it is respectfully submitted that independent Claims 1 and 7 and each of the claims depending therefrom patentably distinguish over Itsumi.

Independent Claim 8 is directed to a personal identification system that have first and second electrodes but the second electrode has a larger area than the first electrode. In a non-limiting example, Figure 2 shows that the second electrode 3 is larger than the first electrode 4.

Itsumi shows in Figure 2B that all the electrodes 142-i are identical and one of ordinary skill in the art would understand that these electrodes have to be identical in order for the measurement shown in Figure 3 to be meaningful, because by providing electrodes 142-i that are not identical, the resistances R1-Rn shown in Figure 3 would depend not only on the finger's physical characteristics but also on the physical characteristics of each electrode, which would make the recognition of the finger difficult, if not impossible.

Accordingly, Applicant respectfully submits that independent Claim 8 and dependent Claim 9 patentably distinguish over Itsumi.

Consequently, in light of the above discussion, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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